



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/828,336

04/21/2004

Tae-kyoung Lee

46324

5458

1609

7590

12/22/2006

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.

1300 19TH STREET, N.W.

SUITE 600

WASHINGTON,, DC 20036

EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

12/22/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/828,336

Applicant(s)

LEE, TAE-KYOUNG

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6-9,12-14 and 19-24 is/are rejected.
- 7) ☒ Claim(s) 2-5,10,11 and 15-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 08/11/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

FINAL REJECTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 6, 9, 14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 6, 3 and 12, respectively, of copending Application No. 10/827,422 (Pub. No. US 2005/0093966) in view of Naoe (US 6,687,283).

Claim 3 of the copending Application No. 10/827,422 recites the following limitations recited in order in claim 9 of the current Application:

- A diode unit including a laser diode for emitting a plurality of laser beams (claim 1/3, line 2),

- A rotating member for supporting the laser diode (claim 1/3, line 3),
- Said rotating member is turned at an angle selected to align positions of the plurality of laser beams (claim 1/3, lines 5-6),
- A fixing member for supporting the rotating member (claim 1/3, line 4),
- A pair of screws are provided to fix the rotating member to the first member of the fixing member (claim 3, lines 2-3),
- Said rotating member further comprises a pair of circular arc-shaped long holes into which said pair of screws can be engaged (claim 3, lines 4-5).

Claim 6 of the copending Application No. 10/827,422 recites the following limitations recited in order in claim 6 of the current Application:

- A diode unit including a laser diode for emitting a plurality of laser beams (claim 1/3, line 2),
- A rotating member for supporting the laser diode (claim 1/3, line 3),
- Said rotating member is turned at an angle selected to align positions of the plurality of laser beams (claim 1/3, lines 5-6),
- A fixing member for supporting the rotating member (claim 1/3, line 4),
- Said diode unit comprises a driving circuit board for controlling the driving of the laser diode, said driving circuit board being connected to the rotating member (claim 6).

Claim 12 of the copending Application No. 10/827,422 recites the following limitations recited in order in claim 14 of the current Application.

However, claims 6, 3 and 12, respectively, of copending Application No. 10/827,422 fail to recite the temporary joining part for maintaining joining status between the rotational member and the fixing member in such a way that the rotational member rotates but cannot easily rotate when the rotational member is rotated for position alignment between the plurality of the laser beams.

Nevertheless, Naoe teaches a multi-beam light source unit (19) comprising a laser diode unit (multi-beam laser diode 31) for discharging a plurality of laser beams, a rotational member (base member 30) for supporting the diode unit (col. 8, lines 54-59) and rotating to a substantially aligned position between a plurality of the laser beams (col. 11, lines 53-56), a fixing member (mounting bracket 20) for supporting the rotational member in a rotatable manner (the mounting bracket 20 having a through hole 25 for accepting the fitting cylinder 32 of the base member 30 and having a diameter a little larger than the outer diameter of the fitting cylinder such that the base member 30 can rotate) (col. 8, lines 60-65), a temporary joining part for maintaining joining status between the rotational member and the fixing member such that the rotational member rotates under restriction, wherein the restriction is increased when the rotational member is rotated for position alignment between the plurality of the laser beams (beside of the through hole 25 for accepting the fitting cylinder 32 of the base member 30, the mounting bracket 20 is also provided with a rotation restricting pin 29 to match with the loose insertion hole 39 located on the base member such that the rotation of the base member is restricted, and wherein when the alignment is achieved, the base member is fixed to the mounting bracket to further restrict the movement of the

Art Unit: 2861

base member with respect to the mounting bracket) (col. 9, lines 14-21), and a fixing part (pair of screws 47) for fixing the rotated rotational member to the fixing member (col. 12, lines 17-26).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to being provide the rotation restricting pin to the device recited by 3, 6 and 12 of copending Application No. 10/827,422 as taught by Naoe for the purpose of allowing a fine adjustment of the positional alignment of the light emitting parts.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1 and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Naoe (US 6,687,283).

With regard to claim 1, Naoe discloses a multi-beam light source unit (19) comprising a laser diode unit (multi-beam laser diode 31) for discharging a plurality of laser beams, a rotational member (base member 30) for supporting the diode unit (col. 8, lines 54-59) and rotating to a substantially aligned position between a plurality of the laser beams (col. 11, lines 53-56), a fixing member (mounting bracket 20) for supporting the rotational member in a rotatable manner (the mounting bracket 20 having a through hole 25 for accepting the fitting cylinder 32 of the base member 30 and having a diameter a little larger than the outer diameter of the fitting cylinder such that the base member 30 can rotate) (col. 8, lines 60-65), a temporary joining part for maintaining joining status between the rotational member and the fixing member such that the rotational member rotates under restriction, wherein the restriction is increased when the rotational member is rotated for position alignment between the plurality of the laser beams (beside of the through hole 25 for accepting the fitting cylinder 32 of the base member 30, the mounting bracket 20 is also provided with a rotation restricting pin 29 to match with the loose insertion hole 39 located on the base member such that the rotation of the base member is restricted, and wherein when the alignment is achieved, the base member is fixed to the mounting bracket to further restrict the movement of the base member with respect to the mounting bracket) (col. 9, lines 14-21), and a fixing part (pair of screws 47) for fixing the rotated rotational member to the fixing member (col. 12, lines 17-26).

With regard to claim 12, Naoe further teaches a multi-beam laser scanning unit having the multi-beam light source unit as stated above, a scanning/image resulting unit (scanning optical system 57 having a polygon mirror 58 and scanning lenses 59) for forming an image on a scanned surface (photosensitive surface 65a of the photosensitive drum 65) by scanning the plurality of laser beams, a frame (housing 56) for supporting the multi-beam light source unit and the scanning/image resulting unit (Fig. 20).

With regard to claim 13, Naoe teaches the multi-beam light source unit being fixed and installed in a bottom wall of the frame (Fig. 20).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naoe in view of Boyatt, III et al. (Pub. No. US 2005/0206717).

With regard to claim 6, Naoe discloses all the basic limitations of the claimed invention including a multi-beam semiconductor laser diode having at least two laser beam discharging parts (Fig. 3), but fails to explicitly teach the operation circuit board connected to the rotational member.

Boyatt, III et al. discloses a multi-beam laser scanning unit comprising a pair of laser holding members (158 and 160) for holding the respective laser diodes (118 and 120), respective fixing members or mounting brackets (66 and 68) having boss cavities (slots 144) for receiving the rotational bosses of the laser holders, wherein the boss cavities comprise a plurality of ribs (152, 154, 156) spaced apart by 120° in the circumferential direction and extending radially from the inner surface of the boss cavities (paragraph [0033]) (Figs. 4-8). Boyatt, III et al. further teaches a laser driver circuit board (57) being connected to the laser diodes (Fig. 3).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Naoe to incorporate the laser driver circuit board as taught by Boyatt, III et al. for the purpose of driving the laser diode.

With regard to claims 22-24, Naoe teaches the fixing member (mounting bracket 20) comprising a first member comprising the boss cavity (mounting bracket having the through hole 25) and a second member vertically extended from the first member (side wall portions 23 and bottom wall portion 21 extending vertically with respect to the upright wall portion 22 forming the mounting bracket 20), the bottom wall portion having a pair of fixing parts or screw inserting holes (21b) as well as a collimating lens (33) for converting a plurality of laser beams discharged from the laser diode unit into a parallel light and a lens holder (arcuate support portion 34) for fixing the collimating lens, but fails to teach the second member having a settle unit, wherein the lens holder is adapted to be settled down on the settle unit of the second member.

Boyatt, III et al. teaches the fixing member including the first member in the form of mounting brackets (66, 68) comprising the boss cavities (slots 144) and a second member in the form of the collimating housing (64) including at least a pair of apertures (82 and 84) for receiving fasteners (88 and 90) for attaching the collimating housing to the print head housing (35) and a settle unit (support plate 70) having collimation lens pockets (106 and 114) adapted to receive the collimation lenses (110 and 116) (paragraphs [0030]-[0031]).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Naoe to include the settle unit as part of the fixing member as taught by Boyatt, III et al. for the purpose of receiving the collimation lens.

7. Claims 7-9, 14 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naoe in view of Mogi et al. (US 6,992,690).

Naoe teaches using a pair of screws (47) for fastening the rotational member (30) to the fixing member (20), but fails to teach the rotational member comprising an arc-shaped long slot through which the at least one screw passes.

Mogi et al. discloses a multi-beam scanning apparatus comprising a laser holder (11a) for holding a multi-beam light source unit (11), the laser holder having a pair of arc-shaped long slots through which a pair of screws (11b) pass so as to attach the laser holder to the side wall (8a) of the optical box (8) (Fig. 6).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the pair of arc-shaped long slots to the laser holder in the device of Naoe as taught by Mogi et al. for the purpose of accommodating the rotational adjustment of the laser holder.

With regard to claim 14, Naoe further discloses the polygon mirror (58) for scanning a plurality of laser beams discharged from the multi-beam light source unit, an image resulting lens (scanning lenses 59) for causing the laser beam scanned by the polygon mirror to impinge onto the scanned surface (photosensitive drum 65) and the synchronization signal detecting unit (see Fig. 20), but fails to teach the cylindrical lens for linearly condensing a plurality of the laser beams on a reflection surface of the polygon mirror.

However, it is well known in the art to include the cylindrical lens for condensing the laser beams into a line on the surface of the reflecting surface of the polygon mirror so as to prevent any distortion of the image focused at the photosensitive drum due to the surface tilt of the polygon mirror as evidenced by Mogi et al. at col. 1, lines 30-41.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Naoe with the cylindrical lens as taught by Mogi et al. since Mogi et al. teaches this to be well known in the art so as to prevent any distortion of the image focused at the photosensitive drum due to the surface tilt of the polygon mirror.

Allowable Subject Matter

8. Claims 2-5, 10-11 and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the reason for the indication of the allowability of claims 3-5 and 16-18 has been stated in the previous Office action issued on 07/09/06.

The primary reason for the indication of the allowability of claims 2 and 15 is the inclusion of the limitations "the rotational boss installed in a projecting manner on a central part of the rotational member, the rotational boss comprising an outer periphery having a varied radius", "a boss cavity formed on the fixing member for receiving the rotational boss in a rotatable manner", and "a plurality of elastic ribs on an inner periphery of the boss cavity for elastically supporting the outer periphery of the rotational boss at a plurality of positions", in combination with the features recited in the parent claims, which are not found taught by the prior art of record considered alone or in combination.

Claims 10-11 are allowable because they are dependent from claim 2 above.

Response to Arguments

10. Applicant's arguments filed 10/13/06 have been fully considered but they are not persuasive.

Applicant argued that "Naoe does not disclose nor reasonably suggest rotation under greater restriction, as claimed by the Applicant in claims 1 and 12 as amended", and pointed to the Specification at pages 7-8, lines 31-33, 1-3, as support for the added feature, namely "the rotational member rotates under restriction, wherein the restriction is increased when the rotational member is rotated for position alignment. However, the Specification states that "the temporary joining part 150 ... once positional alignment between the plurality of laser beams has been achieved does not provide for easy movement of the rotational member 120", which indicates that the rotational member could not move at will once the positional alignment between the plural laser beams has been achieved, i.e., the rotational member is by then fixed to the fixing member. Naoe teaches that the mounting bracket (20) is also provided with a rotation restricting pin (29) to match with the loose insertion hole (39) located on the base member (30) such that the rotation of the base member is restricted, and wherein when the alignment is achieved, the base member is fixed to the mounting bracket to further restrict the movement of the base member with respect to the mounting bracket by using the pair of screws (47).

Claims 1 and 12 are thus given the broadest reasonable interpretation consistent with the specification, and it is found that the claimed limitations in claims 1 and 12 are still read on the teaching of Naoe. See *In re Morris*, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). See MPEP §2111 - §2116.01.

With regard to the Double Patenting Rejection, although Applicant has amended the independent claims 1 and 9 of the copending Application No. 10/827,422 to include

further limitations, the claimed limitations that have been found common to the corresponding claims under consideration in both the copending and the current Applications are however still present. On the other hand, the current amendment to the independent claims 1 and 12 of the current Application does not overcome the teaching of the prior art in Naoe. In other words, claims 6, 9 and 14 of the current Application are not patentably distinct from the reference claims 6, 3 and 12 of the copending Application No. 10/827,422.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HAI PHAM
PRIMARY EXAMINER

December 14, 2006